

CLAIMS

1. Electric switching device comprising one or several power poles, each pole comprising a movable bridge (30) equipped with at least one movable contact (31a,31b) which co-operates with at least one fixed contact (41a,41b) of the pole between open and closed positions, characterised in that:

- the switching device comprises an approach actuator (20) acting on the movable bridge(s) (30) of the switching device so as to allow to distance and bring together the movable contact(s) (31a, 31b) and the fixed contact(s) (41a, 41b);

- each pole comprises a force actuator (42) allowing to establish the contact pressure and the contact disconnection between the movable contact(s) (31a, 31b) and the fixed contact(s) (41a, 41b), without the use of mechanical restoring means.

2. Electric device according to claim 1, characterised in that the approach actuator (20) is an electrically controlled electromagnetic bistable linear actuator.

3. Electric device according to claim 1, characterised in that the approach actuator (20) is a Voice Coil type actuator.

4. Electric device according to one of claims 1 to 3, characterised in that it comprises a distinct approach actuator (20) per pole acting on the movable bridge (30) of each pole.

5. Electric device according to claim 1, characterised in that the force actuator (42) of a pole

comprises at least one piezoelectric element (42a, 42b) acting on the fixed contact(s) (41a, 41b) of the pole.

6. Electric device according to claim 1, characterised in that the force actuator (42) of a pole  
5 comprises at least one piezoelectric element (42a, 42b) acting on the movable contact(s) (31a, 31b) of the movable bridge (30).

7. Electric device according to claim 1, characterised in that it comprises means for measuring  
10 (11) the current circulating in the pole(s) linked to an electronic control unit (10) for controlling the position of the approach actuator(s) (20) and the force actuator(s) (42).

8. Electric device according to claim 7, characterised in that the electronic control unit (10)  
15 comprises means for determining the position in order to regulate the position of the approach actuator(s) (20).

9. Method of switching a pole in an electric  
20 switching device according to any of the preceding claims, characterised in that the closing movement of the contacts comprises an approach step allowing the movable bridge (30) to approach the fixed contact(s) (41a, 41b) via an approach actuator (20) and comprises  
25 a connecting step allowing to establish a contact pressure between the movable contact(s) (31a, 31b) of the movable bridge (30) and the fixed contact(s) (41a, 41b) of the pole via a force actuator (42a, 42b).

10. Method according to claim 9, characterised in  
30 that the opening movement of the contacts comprises a disconnecting step allowing to separate the movable

contact(s) (31a, 31b) of the movable bridge (30) and the fixed contact(s) (41a, 41b) of the pole via a force actuator (42a,42b), then a distancing step of the movable bridge (30) via an approach actuator (20).

- 5        11. Method according to claim 10, characterised in that the disconnecting step is performed when the electric current circulating in the pole is less than a pre-set threshold.